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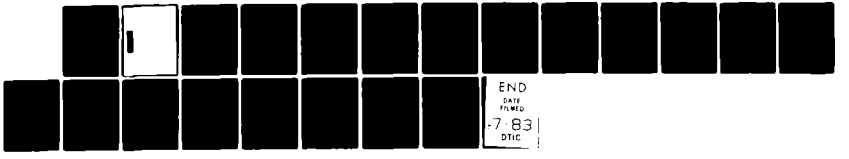

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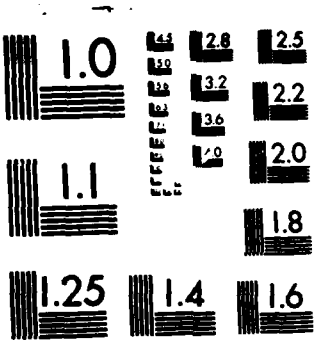

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THE MARINES AND TACTICAL MOBILITY: A CORPS ON THE MOVE

INDIVIDUAL ESSAY

by

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Carlisle Barracks, Pennsylvania 17013
5 May 1983

ABSTRACT

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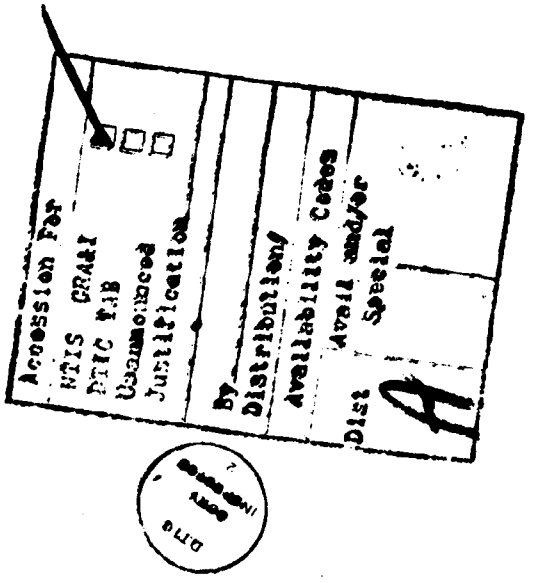

THE MARINES AND TACTICAL MOBILITY: A CORPS ON THE MOVE

The growing mechanization of the world's armies casts a lengthening shadow on a Marine Corps whose day in the sun has been characterized by its prowess as a light infantry force.

Editor's comment on 1978 Naval Institute Proceedings article "Twilight for the Corps?" by William Lind and Jeffrey Record.

Given the formidable combat power of a Marine air-ground task force, few Marines would agree with this characterization of the Corps as "light infantry." Nonetheless, most Marines are increasingly willing to concede the lack of battlefield mobility, if not the lack of firepower, that is implied in the above quotation. Indeed, perhaps the most critical challenge facing the Marine Corps today is the question of how to gain increased tactical mobility without sacrificing strategic mobility. During the past several years, the efforts of the Navy and Marine Corps to preposition supplies and equipment in support of NATO and SWA contingency plans have greatly improved US strategic mobility and have received considerable favorable publicity. Less well known, are Navy and Marine Corps modernization programs and concept developments that will dramatically improve the tactical mobility of US amphibious forces. This article discusses the impact of the Navy's new Air-Cushioned Landing Craft (LCAC) and how it will combine with current and planned USMC troop-lift assets to provide the Corps with enhanced battlefield maneuverability.

OLD CHALLENGE, NEW THREAT

The challenge of projecting combat power from the sea to the land is as old as the first Viking raid on the coast of England. Centuries later,

the British were singularly unsuccessful in meeting the amphibious challenge, and in the process, made Gallipoli a name familar to all military historians. Equally familiar, is the story of the remarkable prescience of Marine amphibious planners in the 1920's and 1930's as they developed the doctrines and techniques that would project them ashore and into the history books. Home from the trenches of Europe and duty with the US Army, the Pete Ellises and the John A. Lejeunes recognized Japan as a threat and saw a mission for the Marines in seizing advance bases in a naval campaign. Given the probability of facing large enemy forces on small Pacific islands, the problem for these early planners was essentially one of how to project maximum firepower and "foot power" into a small space. Although the development of the Landing Vehicle Tracked (LVT) was to be a major breakthrough in overcoming ship-to-shore obstacles, once on the beach in the dense jungles of a Guadalcanal or on the coral sand of an Iwo Jima, there was little requirement for tactical mobility. Tactical dominance would be achieved by strategic surprise.

World War II proved conclusively that the utility of amphibious operations was not limited to naval campaigns against remote islands and indeed, the ability of the United States to project ground forces from the sea was not only a potent military capability but a useful diplomatic tool as well. With the armed forces reorganization following World War II, the Marine Corps expanded its horizons from the Pacific to the world. It was no longer enough to be able to project firepower and foot power ashore. . . . Marines would need mobility to cope with the expanded battlefields of the world's littorals. Marine planners continued to refine the capabilities of the LVT and began experimenting with incorporating the helicopter into amphibious tactics. The concept of "Vertical Envelopement," pioneered by the Marine Corps in Korea, was a revolutionary step forward, not only in

the greatly increased mobility and flexibility that it gave to Marine infantry and artilleryman but also in the agility that it gave to the cumbersome mobility of the US Army.

THE MOBILITY BREAKTHROUGH

Today's generation of amphibious planners realize that to fight and win on tomorrow's battlefields, the Corps will require more tactical mobility than is provided by present LVT and helicopter assets. A number of innovations are on the drawing boards and in the tests-beds that, taken in the aggregate, will dramatically change the way that Marines will function and fight in the future. The Corps is on the verge of a mobility breakthrough: air-cushion landing craft that can skim across reefs and minefields, hauling 75 tons at speeds of 50 knots; new light-weight armored vehicles that can be transported by helicopter across a beachhead or a desert; a fleet of new and faster LVTs and a new replacement for the redoubtable jeep. They come with a confusing array of acronyms: LCAC, LAV, MPGS, SLEP and "Humvee". . . but they all spell MOBILITY for the infantryman.

LCAC: A REVOLUTIONARY CONCEPT

Leading the list of mobility innovations is the US Navy's revolutionary new Landing Craft, Air Cushioned (LCAC). Touted as the most significant advance in amphibious warfare since the introduction of the helicopter, the LCAC (pronounced "L-Kak") is a high-speed, amphibious landing craft that travels over land or water on a pressurized cushion of air. Carried in the well-decks of various types of amphibious ships--the LSD, LPD, LHA, and the future LHD--it can be launched from over-the-horizon and has a range of 200 miles. Each LCAC will have a payload of 60 to 75 tons,

can carry a main battle tank or three lanes of smaller vehicles and, skimming over the sea surface at up to 50 knots, it can operate almost independently of thoses factors that have limited amphibious operations in the past: tides, water depth, beach gradients, underwater obstacles and beach trafficability; all of these once formidable limitations are no longer impediments to a successful landing. Once ashore, it can traverse sand-dunes, mudflats, ditches, marshlands and estuaries in order to offload mobile assault forces, supplies and equipment in trafficable terrain near the inland objective. "Operational suitability" studies have shown that a maximum of 5% of the coastline of Northern Europe would be open to assault by conventional landing craft; the LCAC could land on anywhere from 40-90% of the same coastline, depending on the parameters chosen. In the Persian Gulf, conventional craft could effect a landing on 5-10% of the coastline . . . LCACs on 70-90%. Worldwide, only 17% of all coasts could be assaulted by conventional craft . . . with LCAC the figure averages out at 70% . . . a fourfold increase.[1] Given the LCAC's potential for surprise, decepion and maneuverability, Defense Department analysts have estimated that LCAC will become such a "force multiplier" as to reduce enemy coastal defense effectiveness by sixfold.[2] It is little wonder that the term "revolutionary" is so frequently used in reference to LCAC.

LCAC: AN EVOLUTIONARY DEVELOPMENT

In spite of LCAC's avant-garde image, Air-Cushioned Vehicles (ACVs) have been around for some time. Beginning in 1961, the British Ministry of Defense established a Hovercraft trial unit in order to investigate potential roles for the three Royal services. British prototypes saw extensive testing in the English Channel, the North and South Atlantic (including the Falkland Islands) and the waters of Hong Kong. Although the British tested

ACVs as high-speed patrol craft, amphibious assault craft and mine countermeasure craft, budget restrictions have limited production models to a low-cost single-role mine hunter recently selected for the Royal Navy.

British Hovercraft fared somewhat better in the area of foreign military sales. Three British Hovercraft Corporation ACVs were combat tested in Vietnam by the US Navy, and another three, produced under American license were purchased by the US Army for logistic support operations in Vietnam. Between 1968 and 1976, the Shaw of Iran outfitted his Navy with fourteen BHC craft. Saudi Arabia has, for the past eleven years, used British ACVs to patrol both her Persian Gulf and Red Sea coasts. Additional, the Egyptian Navy has three craft utilized for coastal patrol and minelaying.[3]

Although American involvement in the development of ACV technology started out slowly it has steadily begun to pick up momentum. In 1979, the US Army ordered an intial buy of twelve high-speed ACVs from Bell Aerospace Textron for use as amphibious lighters. Designated the LACV-30, they will replace the Army's aging fleet of LARC-5 and LARC-15 logistic support landing craft. LACV-30 can be carried on the cargo deck of most ships in the US Maritime fleet and can deliver a 30 ton payload at 40 mph.

The Origins of LCAC. The US Navy's entry in the ACV evolution, goes back to 1965. Early studies indicated that a high-speed, 60 ton ACV would have the greatest potential for replacing the aging LCM family of landing craft which have been putting Marines ashore since before Iwo Jima. The inception of the Amphibious Assault Landing Craft Program, resulted in the construction of two 60 ton test vehicles, known as JEFF (A) and JEFF (B). During the five year period from 1977 to 1981 the Navy's Operational Test

and Evaluation Force, a sub-unit of the Naval Ship Research and Development Center, conducted extensive tests of both vehicles at Panama City, Florida. The result was LCAC . . . a combination of the best traits of both prototype vehicles. Currently in production by Bell Aerospace Textron in New Orleans, the first three LCACs will be completed in 1984. Additionally, a contract has been signed for three more during FY 1985 and funding has been approved for six to be produced in FY 1986. According to the Five Year Defense Plan, a full scale production rate of 12 per year is planned beginning in FY87 and ending in 1995. Total production is envisioned at 107 craft at a total program cost of about $20-24 million dollars per copy. OPEVAL testing on the first LCAC production model will be conducted at Panama City during the summer of 1984.

In order to provide "home ports" for these new Navy craft, LCAC "Base Support Sites" have been identified on both coasts of the United States. Construction is expected to begin at Camp Pendleton, California, in late 1983 with the base becoming operational in late 1985 when the first six of 54 LCACs are scheduled to be delevered for use in the two Pacific fleets. A second base will be built in the vicinity of Norfolk, Virginia beginning in about 1985.

Soviet Hovercraft. While the British and the Americans have spent almost two decades in developing and evaluating prototype ACV designs for military use, the Russians have shown considerably more resolve in taking advantage of ACV capabilities. The Soviet Navy introduced operational ACVs in 1969 and currently has three operational classes operating in the fleet. The 27 ton "Gus" carries 25 fully equipped troops at speeds up to 50 knots. About 30 of this type are thought to be in service. A second class, the "Aist" at 270 tons is easily the largest military ACV in the world. It can

transport two T-62 or T-72 tanks or as many as four or five PT-76 light amphibious tanks. About 15 are believed to be in the fleet. In 1979, a third ACV class appeared, the "Lebed." It is thought to carry a payload of about 40 tons and has a speed of 55-60 knots. The Soviet Navy's latest amphibious assault ship, Ivan Rogov, can operate with three Gus or Lebeds and Soviet ACVs now appear regularly in amphibious exercises in the Baltic.[4]

OLD FAITHFUL: THE LVT

Since 1943, when the first Alligator crawled over the reef at Tarawa and moved inland against entrenched Japanese forces, the Landing Vehicle Tracked has been the primary source of Marine Corps tactical mobility. Indeed, until the helicopter joined the Fleet Marine Force in the 1950's, the LVT provided the only tactical mobility, short of trucks, in the Corps' inventory. Originally built as an unarmored logistics support vehicle, the LVT quickly evolved into an offensive role as an armored troop carrier and a mobile assault-gun platform. By the end of World War II, the LVT was regarded as one of the major tactical weapon developments of the war. Even so, full recognition for the offensive mobility role of the LVT did not come until the late 1970's when the Marine Corps' four Amphibious Tractor Battalions were renamed "Assault Amphibian Battalions" and the LVT became an "AAV" . . . Amphibious Assault Vehicle. Since 1971, the current version of the LVT troop carrier has been the LVTP7. Capable of carrying 18 combat Marines at a ground speed of 45 mph, a range of 300 miles and able to negotiate 10-foot plunging surf, the LVT7 family of vehicles has provided Marines with a degree of land and water mobility that they had not previously known. For example, an LVT-borne force could transit the Straits of

Hormuz fully loaded for combat, hit the beach and quickly move inland against designated objectives.

Fully committed to continued reliance on the LVT as its principal troop carrier, Marine Corps Headquarters, is currently subjecting its fleet of almost 1,000 vehicles to an extensive Service Life Extention Program (SLEP). Major improvements, including a new engine, modified fuel tank and an enhanced weapons station, will keep the redesignated LVT7A1 in the USMC inventory until early 1990's. Additionally, as a strategic mobility enhancement initiative, the Corps is buying 329 new LVT7A1's at a unit cost of $850,000 each. These vehicles are intended for the three Maritime Prepositioning Ship Brigades authorized by the 79th Congress.

Currently on the drawing boards, the LXT(X) is programed as the follow-on AAV to the LVT7A1 family of vehicles. An evolutionary improvement over the LVT7A1, it will have improved water speed, greater maneuverability, enhanced troop protection, reduced vehicle vulnerability and added offensive firepower. An earlier model, the Landing Vehicle Assault (LVA), was to have been a revolutionary step forward and complement the speed and over-the-horizon range of the LCAC. However, the Commandant of the Marine Corps, General Wilson, cancelled this program in 1979, citing excessive costs, untested technology and the fact that the large size of the proposed vehicle would make it a lucrative target.

LAV: THE NEW ARRIVAL

In September, 1982, Pentagon officials announced that an eight-wheeled fighting vehicle built by General Motors of Canada had been selected by the Army's Tank Automotive Command as the winner of the keenly contested Joint Army/Marine Corps Light Armor Vehicle competition. The basic version of the vehicle, nicknamed "Piranha," will be operated by a crew of three,

carry an organic infantry squad of six, and will mount a 25mm Bushmaster rapid-fire automatic cannon along with a 7.62 coaxial machine gun. With a weight of 14.1 tons, the vehicle is amphibious and has a road-speed of over 60mph. While the Marine Corps is currently buying only the basic light assault version of the LAV (LAV-25), a number of variants will be available to meet the need of both services; these include an Assault Gun version as well as Anti-Tank, Air Defense, Mortar, Logistics, Command, and Recovery vehicles.

Marine Corps Headquarters, is planning to field three 145-vehicle Light Armored Assault Battalions (LAABs) by FY86 with a first company to be operational at Twentynine Palms, California, in February 1984. LAV units will be split up between the three Marine Amphibious Forces (MAFs) with one LAAB assigned to II MAF at Camp LeJeune, North Carolina, one and two-thirds assigned to I MAF--(two-thirds of a battalion at Camp Pendleton and one battalion at Twentynine Palms). Because of limited training sites, III MAF on Okinawa will be assigned only one LAV company.

The Piranha is regarded as off-the-shelf "quick-fix" to meet the immediate requirement to add firepower and maneuver to the infantry; an additional longer term improvement will be the development of the Mobile Protected Gun System (MPGS). Featuring a two man crew and a state-of-the-art anti-armor systems, it is currently on the drawing board with an IOC of 1992.

The need for Light Armored Vehicles in the force structures of the Army and Marine Corps grew out of two conflicting but interdependent problems: the need to build a rapid deployment force that was light enough to have world-wide strategic mobility while at the same time, possessing the firepower and tactical mobility to defeat Soviet armored and mechanized forces. With the formation of the rapid deployment force in 1979, it

became painfully clear that there was a dramatic mismatch between the two. The Carter imperative, requiring a power projection capability into the Persian Gulf, forced both services to reevaluate priorities.

For the US Army, it meant that the standard infantry division would have to be redesigned to be lighter and more strategically mobile. According to Army officials, at present it requires about 1,230 sorties of C-5a and C-141 aircraft to move the 9th Infantry Division to an overseas trouble spot.[5] Using present military airlift command assets, it would take several weeks to ferry the division by air. With this problem in mind, the Army is attempting to come up with ways to reduce this figure to 800 sorties. One solution is to use Light Armored Vehicles instead of the heavier ones currently in the Army inventory.

For the Marine Corps, where readiness and strategic mobility had long been a way of life, the problem was slightly different; over the years, the FMF had remained light by concentrating a significant portion of its combat power in aviation assets to form combined arms, air-ground teams. Heavily dependent on helicopters and close air support, it was necessary to "heavy-up" the infantry in order to gain increased ground tactical mobility and firepower. At 14 tons, the LAV can be tactically lifted by Marine CH-53E helicopters, a factor that has driven the USMC requirement for an armored vehicle that was lighter than the Army's long awaited Bradley Fighting Vehicle. The LAV will provide a Marine helicopter-borne force with mobility and firepower not previously available. Tactics and doctrine for the LAV are still in the developmental stage; however, it is envisioned that it will be used primarily for screening, flanking, reinforcement and reconnaissance missions.

One has only to read recent issues of the Marine Corps Gazette to learn that the LAV decision has not been universally accepted within the

Corps. In an era when the acquisition process for new weapons systems frequently drags on for ten years or more, the relatively short gestation period for the LAV startled officers in the Fleet Marine Forces, if not in Washington and Quantico. While the selection of "Piranha" came after an exhaustive evaluation period and series of program adjustments and delays, it nonetheless occured in less than a year and one-half after the Light Armored Vehicle Program was first established. Marines who had just begun to accept the idea of light armored vehicles were almost immediately faced with the realization that the delivery date was just around the corner. Much like the prospective parents of an unplanned baby, Corps planners are currently working over-time on preparations to accomodate the new arrival.

LCAC EMPLOYMENT DOCTRINE EMERGING

Within naval circles in general, the approach of these new mobility assets is creating something of a doctrinal bow-wave. In one respect, the challenge for amphibious planners is no different than that faced by all defense planners throughout history: how to blend new technologies, forwarding looking concepts and available funding to create a force that can meet a realistic threat. However, the trick for US amphibious planners is that while the Navy and the Marine Corps fight wars as a team, they contitute a team that plans for war in separate arenas. Moreover, while "Amphibious Warfare" is the name of the game for the Marine Corps, its sister service is facing multiple competetion, not only in the broader aspects of power projection, but sea control and nuclear deterrence as well. As a result, each service has a tendency to establish unilateral funding priorities, threat assesments and concepts of operation. It is little wonder that the NAVMC Team frequently has difficulties in coming up with a game plan that each service can live with. For the past several

years, however, a concentrated effort has been made to develop joint concepts for employment of Navy and Marine forces in a maritime strategy. The doctrine that is beginning to emerge, clearly shows that LCAC is a key link between the strategic mobility provided by the Navy's amphibious squadrons and the tactical mobilty of Marine ground forces. As such, it is the critical element on the Corps' mobility breakthrough in that it has the capability to lift all of the other ground tactical mobility assets in the critical ship-to-shore movement.

In January, 1983, the Navy and Marine Corps officially approved "Concept of Operations and Employment for LCAC." In general terms, it can be said that this document reflects a seaward extension of the Marine Corps' combined arms concept for maneuver warfare ashore. Future landing operations can be expected to be less deliberate and more opportunistic; capitalizing on real-time intelligence, alternate beaches and detailed deception operations, surface landings can be made where enemy forces are not--or where they are weakest. Specifically, the document establishes doctrine for use of LCAC in amphibious operations and provides employment concepts for the phased assimilation of LCAC into the force during the next ten years. Additionally, it provides a basis for reconciling incompatabilities between the high speed, coastal standoff capabilities of the LCAC and low-speed, close-in requirements of the LVT and other displacement hull assault craft. By careful planning and coordination of the ship-to-shore movement, the amphibious commander can insure the integration of all assault delivery means in a way which maximizes their individual capabilities and minimizes their limitations. Helicopters will continue to provide the landing force with the most rapid, flexible and mobile means of getting ashore. Although the addition of the LAV-CH53E option will significantly improve the mobilty

and firepower of the heloborne force, the landing plan must continue to reflect close coordination with surface delivered assets in order to assure staying power and support. Air-cushion technology will introduce speed and long-range into the surface portion of the assault. With LCAC, the long standing requirement of projecting a helicopter assault force 50 miles in 90 minutes will also be possible for the surface assault force. The CLF will be able to have the bulk of his ground mobility and striking power--his true ground-gaining and consolidating forces--delivered inland with a flexibility approaching that of helicopterborne forces. As an example, one LCAC might provide lift for one M-60 tank plus eight anti-tank TOW vehicles along with 50 infantrymen. Other LCAC load options might include 12 HMMWVs[6] or five LAVs or three AAVs. This latter option not only increases the waterborne capbility of the otherwise slow AAVs, but also significantly reduces the risk to the mother-ship which would normally be required to close to within 4000 meters of the beach in order to launch the "tracks."

It is clear from the above, that the addition of LCAC, along with the CH53E and the LAV, greatly expand the options available to CATF and CLF in developing their landing plan and scheme of maneuver ashore. Each of the three landing force assault elements, helicopterborne, conventional landing craftborne and air cushion craftborne, can be structured to provide an optimal mix of firepower and mobility for prosecution of immediate mobile operations ashore. A typical scenerio might look like this: helicopters transport forces composed of infantry, towed artillery, and anti-tank weapons (LAVs could also be included if necessary) to inland Helicopter Landing Zones (HLZs) to block enemy access to the landing site. LCAC's transport infantry mounted in LAVs, along with towed artillery prime-movers and self-propelled artillery to CLZs (Cushion Landing Zones) up to 1000 meters inland of the beach.[7] The conventional craftborne force composed of

infantry mounted in AAVs and tanks landed by LCU/LCM move to join up with either of the other two forces or to a separate objective. Subsequent turn-around trips by both helo's and LCACs would effect a force buildup rate that has the capability of confounding the most unflappable opposing force commander. As the battle ashore progresses, the CLF can quickly redeploy or reinforce his assault forces by sea or by air to exploit enemy weaknesses.

No matter what future battlefield scenarios may provide, however, it is obvious that flexibility and mobility will be the key ingredients to success. As one writer puts it, "Like chess, the modern amphibious operation is primarly an exercise of maneuver and secondarily one of power." We have always recognized this principle in its strategic form but now amphibious forces will be able to give it tactical application as well. For the first time, Marines will have substantial tactical mobility built into the MAGIF/ATF structure. In the past few years, the Navy and Marine Corps, working together as a team, have begun to blend future equipment, weaponry and tactical concepts into what one writer has called an "amphibious mobile assault" capability. The ingredients are all there . . . it remains only for Marines and Navymen to work out the details.

ENDNOTES

1. "First, Fast and Foremost: The LCAC Revolution," Seapower, November 1981, p. 24.

2. Joseph H. Alexander, "Amphibious Warfare: What Sort of Future?" Proceedings, February 1982, p. 63.

3. Alan Blunden, "Military Hovercraft," International Defense Review, November 1982, pp. 1539-1545.

4. Ibid, p. 1542.

5. Ramon Lopez, "The US Army's Light Infantry Division: A Key Element of the RDJTF," Internation Defense Review, February 1982, p. 187.

6. The HMMWV or High-Mobility, Multipurpose, Wheeled Vehicle, is a new family of light wheeled vehicles which will soon replace the current M151 Jeep, M247 Mule, M561 Gamma Goat, and the M718 and M792 ambulances. In doing so, it will serve as a weapons platform, communications vehicle, and multi-purpose logistics vehicle. In all these roles, it is expected to streamline maintenance, training, and support requirements. Most importantly, it will halve the required number of wheeled vehicles for the Marine Division while increasing its tactical mobility.

7. As spelled out in the newly published LCAC doctrine, control of air cushioned vehicles during the ship-to-shore movement will closly resemble the present control of helicopters with LCACs delivering their payloads to CLZs--Cusion Landing Zones--up to 1000 meters inland of the beach, thus eliminating the beach bottleneck that has long been a characteristic of amphibious operations.


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